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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/389,085	09/02/1999	JOE H. MULLINS	UNME-0019-1	4882

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EXAMINER

GRIER, LAURA A

ART UNIT PAPER NUMBER

2644

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/389,085

Applicant(s)

MULLINS, JOE H.

Examiner

Laura A Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 3, 11 and 16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 and 26 is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7, 9-10, 12-15, 18-22, 24-25 and 27 is/are rejected.
- 7) ☒ Claim(s) 8 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: .

**DETAILED ACTION**

1. The indicated allowability of claims 4-5, 8, 10, 18 and 21-22 is withdrawn.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claim 1-2, 4-7 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi et al. and Hobelsberger, and further in view of Tokura et al., U. S. Patent No. 5533134.

Regarding **claim 1**, Funahashi et al. (herein, Funahashi) disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker and radiator (figure 4 and 5). However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

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Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

However Funahashi and Hobelsberger (herein, Funahashi combination) fails to specifically disclose the sensor as a speaker. Regarding the sensor being a speaker, in a similar field of endeavor, Tokura et al. (herein Tokura) discloses a MFB loudspeaker apparatus having a coupling member for connecting a voice coil bobbin with a detecting coil bobbin. Tokura's disclosure comprises a speaker unit (figures 2 and 3, reference 3; and col. 4, lines 59-67 and col. 5, lines 1-14) which detects vibrations of a voice coil, which constitutes a speaker as a sensor and provides feedback results to the vibrations back to an amplifier.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Funahashi combination by incorporating a speaker for sensing and/or detecting voice coil vibrations of the loudspeaker for the purpose of enabling the loudspeaker system to reproduce low frequency range audio with high quality sound.

Regarding **claim 2**, Funahashi combination and Tokura (herein, Funahashi-Tukora) disclose everything claimed as applied above (see claim 1). Funahashi further discloses an audio system comprising a speaker system providing and improved low frequency characteristic (col. 5, lines 23-27).

Regarding **claim 4**, Funahashi-Tokura disclose everything claimed as applied above (see claim 1). Tokura further discloses the coupling material for coupling the detections means of the bobbins providing vibration damping characteristics (col. 11, lines 52-58).

Regarding **claim 5**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1). However, Funahashi-Tokura fails to specifically disclose the mounting structure comprising an enclosure mounted on the first wall and including said opening in the said first wall. It would have been obvious to one of ordinary skill to mount the mounting structure in an enclosure and position the mount as desired for optimal support and function of the sensor to detect the surround vibrations.

Regarding **claim 6**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1). Funahashi (col. 4, lines 43-59) and Hobelsberger (col. 3, lines 45-49), both further discloses an amplifier receiving an input via feed from the sensor which provides support of adjusting the output of the speaker based on the sensed pressure.

Regarding **claim 7**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1). Hobelsberger provide support of the speaker having a maximum width and the sensor having a sensor maximum width, wherein the width of sensor is smaller that the width of the speaker.

Regarding **claim 9**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1). Funahashi further discloses in figures 7b and 8b, indication that the feedback factor is in a range of 10 dB to 40 dB as the frequency ranges from 20Hz to about the 300 Hz range, which is indicative of the claimed limitations.

Regarding **claim 10**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1). Funahashi discloses a damper (col. 4, lines 44-57), which may constitute as an acoustic material.

4. **Claims 14, 15 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi-Tokura.

Regarding **claim 14**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker and radiator (figures 4 and 5). Funahashi (col. 4, lines 43-59) discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure. However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further, Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the

sensor, which provides support of adjusting the output of the speaker based on the sensed pressure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

However Funahashi and Hobelsberger (herein, Funahashi combination) fails to specifically disclose the sensor as a speaker. Regarding the sensor being a speaker, in a similar field of endeavor, Tokura et al. (herein Tokura) discloses a MFB loudspeaker apparatus having a coupling member for connecting a voice coil bobbin with a detecting coil bobbin. Tokura's disclosure comprises a speaker unit (figures 2 and 3, reference 3; and col. 4, lines 59-67 and col. 5, lines 1-14) which detects vibrations of a voice coil, which constitutes a speaker as a sensor and provides feedback results to the vibrations back to an amplifier.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Funahashi combination by incorporating a speaker for sensing and/or detecting voice coil vibrations of the loudspeaker for the purpose of enabling the loudspeaker system to reproduce low frequency range audio with high quality sound.

Regarding **claim 15**, Funahashi and Hobelsberger disclose everything claimed as applied above (see claim 14). Funahashi further discloses an audio system comprising a speaker system providing and improved low frequency characteristic (col. 5, lines 23-27).

Regarding claim 18, Funahashi and Hobelsberger disclose everything claimed as applied above (see claim 14). The claimed limitations are rejected for the same reasons set forth in the rejection of claim 9.

5. **Claims 12 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi-Tokura and further in view of Bertagni et al. (herein, Funahashi combination).

Regarding **claims 12 and 19**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1 and 14, respectively). However, Funahashi-Tokura fails to specifically disclose electrodynamic planar speaker. The examiner maintains that such a loudspeaker was well known in the art.

Regarding the electrodynamic planar speaker, in a similar field of endeavor, Bertagni disclose a planar diaphragm loudspeaker comprising electromagnetic drivers, which constitutes an electrodynamic planar speaker.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi-Tokura by incorporating an electrodynamic planar speaker for the purpose of dynamic quality and good efficiency in sound output; and with improved frequency response as taught by Bertagni in col. 3, lines 62-67.

6. **Claims 13 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi-Tokura.

Regarding **claims 13 and 20**, Funahashi-Tokura discloses everything claimed as applied above (see claim 1 and 14, respectively). However, Funahashi-Tokura fail to specifically



disclose electrostatic planar speaker. The examiner takes official notice of the fact that an electrostatic planar speaker was well known in the art.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi-Tokura by providing an electrostatic planar speaker for the purpose of employing a small speaker in size, yet providing good sound quality.

7. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi-Tokura.

Regarding **claim 21**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein, which may indicate a speaker mounted in first wall, for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker (figures 4 and 5). Funahashi (col. 4. lines 43-59) discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure. However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker

housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further, Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure. However Funahashi and Hobelsberger fails to specifically disclose the mounting structure comprising a damped elastic mounting structure. Regarding the mounting structure, in a similar field of endeavor, Tokura) discloses a MFB loudspeaker apparatus having a coupling member for connecting and/mounting a detection means, which provides vibration damping characteristics (col. 11, lines 52-58), which may constitute as an damped elastic mounting structure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Funahashi and Hobelsberger by incorporating a mounting structure for absorbing, dampening and/or attenuating vibrations of the structure and audio system.

8. **Claim 22** rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi and Hobelsberger.

Regarding **claim 22**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of

the speaker and radiator (figures 4 and 5). Funahashi (col. 4, lines 43-59) discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure. However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further, Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

However, Funahashi and Hobesberger fails to specifically disclose the mounting structure comprising an enclosure mounted on the first wall and including said opening in the said first wall. It would have been obvious to one of ordinary skill to mount the mounting structure in an enclosure and position the mount as desired for optimal support and function of the sensor to detect the surrounding vibrations.

9. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi and Hobelsberger.

Regarding **claim 24**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker and radiator (figures 4 and 5). Funahashi discloses a damper (col. 4, lines 44-57), which may constitute as an acoustic absorbing material.

However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further, Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

10. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi and Hobelsberger.

Regarding **claim 25**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker and radiator (figures 4 and 5). Funahashi further discloses in figures 7b and 8b, indication that the feedback factor is in a range of 10 dB to 40 dB as the frequency ranges from 20Hz to about the 300 Hz range in respect the to vibration level and sound level, respectively, which is indicative of the claimed limitations. However, Funahashi does not disclose whether the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further,

Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

11. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi and Hobelsberger.

Regarding **claim 27**, Funahashi disclose a loudspeaker system and sound reproducing apparatus. Funahashi's disclosure comprises a audio system with a speaker system including a cabinet with a opening with a speaker mounted inversely therein; as well as passive radiator mounted opposite the speaker, both for emitting audio output, which is indicative of the "cabinet", "1<sup>st</sup> speaker", and "passive radiator" (figure 1 and abstract and col. 3, lines 9-21 and col. 4, lines 20-40). Further, Funahashi discloses a microphone means for sensing the output of the speaker and radiator (figures 4 and 5). Funahashi (col. 4. lines 43-59) discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure. Funahashi further discloses in figures 7b and 8b, indication that the feedback factor is in a range of 10 dB to 40 dB as the frequency ranges from 20Hz to about the 300 Hz range in respect the to vibration level and sound level, respectively, which is indicative of the claimed limitations. However, Funahashi does not disclose whether

the sensing microphone is position within or outside of the cabinet. The examiner maintains that a sensor being located with a speaker cabinet was well known.

Regarding the sensor being located within the speaker cabinet, in a similar field of endeavor, Hobelsberger discloses a device to improve the bass reproduction in loudspeaker systems with a housing. Hobelsberger's disclosure comprises a sensor placed within a speaker housing (cabinet) for sensing pressure within a speaker enclosure (col. 3, lines 40-49). Further, Hobelsberger (col. 3, lines 45-49), discloses an amplifier receiving an input via feed from the sensor, which provides support of adjusting the output of the speaker based on the sensed pressure.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Funahashi by implement a sensor within the cabinet for the purpose of being able to sense pressure, which is generated between two structures and/or means.

***Allowable Subject Matter***

12. **Claims 23 and 26** are allowed.
13. **Claims 8 and 17** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

14. Applicant did not provide any arguments.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks


Washington, D.C. 20231

**Or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG   
February 24, 2003

  
**MINSUN OH HARVEY  
PRIMARY EXAMINER**